



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

"THE VARIATION OF PRODUCTIVE FORCES." A COMMENT.

Professor Bullock has performed a much-needed service, in the August number of this *Journal*, in making a fresh examination of the old doctrine of "diminishing returns." A crooked place, indeed, has been made far straighter than it was before. But, although in substantial agreement with Professor Bullock, I wish to call attention to one point, at which his treatment of the subject seems to be inadequate.

On every hand in economic phenomena we find, as De Quincey phrased it, a "Zeūgos, or *yoke* of forces,"* — principles working together in pairs, and producing between them resultant movements. Thus, in respect to the general subject before us — the variations of productive efficiency — there are, on the one side, the force or complex of forces which we may call the principle of economic resistance,† and, on the other side, the principle of invention, or creative advance. And, moreover, as the outcome of the working together in combination of these two principles, there is in the long run a resultant movement, which, according as the first or the second predominates, or the two balance, we call a law of diminishing, increasing, or stationary returns,— efficiency. Obviously the law may change its character during considerable periods of time; and, obviously, during very short periods of time there can hardly be such a resultant law at all, since the principle of invention has no opportunity to exert itself. During a very short period of time (which is more or less according to the nature of the industry) there is opportunity merely to conduct an experiment in purely cumulative economic effort, demonstrating the existence of the principle of resistance, such an experiment as is described by Professor

* *The Logic of Political Economy*, chap. iii.

† The expression "economic friction," which otherwise might be graphically employed here, is already in use for a wholly different purpose, to denote all those things which prevent the formation of a perfect market, and so uniform wages, profits, or prices.

Bullock, following Marshall, on page 487. In like manner, again, under what Professor Bullock calls "static conditions,"—that is, a state of expanding capital and labor, but with the principle of invention by hypothesis in abeyance,—there can be nothing revealed but the yoke-fellow of the principle of invention working alone. This is a distinction which, it seems to me, would have added to the value of Professor Bullock's exposition.

The principle of economic resistance (imperfectly distinguished from the law which may receive its character from it) was the new thing in the classic theory of rent set forth by Malthus, West, and Ricardo. Anderson long before had given an excellent description of agricultural rent; but it was only a description, not an explanation, since it wholly lacked its proper philosophical basis,—the principle of resistance as met with both in intensive and extensive cultivation. But the classic writers erred in over-emphasizing resistance to the neglect of invention in the industry of agriculture as a whole, and so came to the making of pessimistic prophecies as to the resultant movement, which have been falsified now during a long term of years. More recent followers of the school have been slow to change their tone, apparently finding it hard to cut loose from considering the industry of agriculture by areas, or by comparatively small districts, and to perceive that under modern means of transportation it is free to range over the whole world, having recourse to new lands which are as good, or better, than the old.

On the other hand, the classic writers and their followers have been slow to recognize the existence of the principle of resistance in other industries besides the extractive industries. This has been so, apparently, in part because they have not considered problems in manufacturing and commercial production by definite areas, and in part because they had assumed in physiocratic fashion that agriculture was the "pace-setter" for general industrial society. They examined with care into the causes of the weakness of the weakest link in their chain: the other links they naively assumed to be infinitely strong.

In expanding industry in general, resistance is met with, it

seems to me, in three leading forms : first, in respect to obtaining and technically manipulating materials,—the necessity of resort to more difficult sources of supply of old materials and the necessity of working more refractory new materials; secondly, in respect to organization,—the difficulties of managing men, guarding against leaks, securing a proper balance of parts of a business; thirdly, in respect to marketing, which is a matter not only of expense and time in bringing old sorts of products to market and getting one's pay, but also of expense and time in supplying the market with new sorts of products as it becomes glutted with the old. Each of these forms of resistance, which may be divided into many sub-varieties, has its own appropriate sort of invention more or less offsetting it,—improvements in transportation, in the systematizing of work, in the art of advertising, etc. This is a department of economics in which, I think, more light is needed. But the only point I wish to urge against Professor Bullock is that he has failed to distinguish clearly enough between the initial principle of resistance in general and one of the resultant laws which may be the outcome of its combination with the other initial principle of invention.

C. W. MIXTER.

HARVARD UNIVERSITY.